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PTO/SB/05 (12/97)

Approved for use through 09/30/00. OMB 0651-0032

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 04957.P001 Total Pages 4, including Fee Transmittal

First Named Inventor or Application Identifier Jack D. Robinson

Express Mail Label No. EL 14356 9049 US

10/10/00
09/686206
PTO
U.S.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, D. C. 20231

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. X Fee Transmittal Form
(Submit an original, and a duplicate for fee processing)
2. X Specification (Total Pages 26, including cover page)
(preferred arrangement set forth below)
 - Descriptive Title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claims
 - Abstract of the Disclosure
3. X Drawings(s) (35 USC 113) (Total Sheets 5 sheets of 6 figures)
4. X Oath or Declaration (Total Pages 5); **Unsigned**
 - a. Newly Executed (Original or Copy)
 - b. Copy from a Prior Application (37 CFR 1.63(d))
(for Continuation/Divisional with Box 17 completed) (**Note Box 5 below**)
 - i. DELETIONS OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
5. Incorporation By Reference (useable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. Microfiche Computer Program (Appendix)

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7. ☐ Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
a. ☐ Computer Readable Copy
b. ☐ Paper Copy (identical to computer copy)
c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☐ Assignment Papers (cover sheet & documents(s))
9. ☐ a. 37 CFR 3.73(b) Statement (where there is an assignee)
☐ b. Power of Attorney
10. ☐ English Translation Document (if applicable)
11. ☐ a. Information Disclosure Statement (IDS)/PTO-1449
☐ b. Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. ☐ a. Small Entity Statement(s)
☐ b. Statement filed in prior application, Status still proper and desired
15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☒ Other: Two checks in the amounts of \$710.00 and \$80.00

17. If a **CONTINUING APPLICATION**, check appropriate box and supply the requisite information:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP)
of prior application No:

18. **Correspondence Address**

☒ Customer Number or Bar Code Label 008791
(Insert Customer No. or Attach Bar Code Label here)
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12/01/97

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PTO/SB/05 (12/97)

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FEE TRANSMITTAL

TOTAL AMOUNT OF PAYMENT (\$) 870.00

Complete if Known:

Application No. Unassigned
Filing Date October 10, 2000
First Named Inventor Jack D. Robinson
Group Art Unit Unassigned
Examiner Name Unassigned
Attorney Docket No. 04957.P001

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:
- Deposit Account Number _____
Deposit Account Name _____
- ☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17, charge any deficiencies, and credit any over payments to Deposit Account Number 02-2666
- ☐ Charge the Issue Fee Set in 37 CFR 1.18 at the Mailing of the Notice of Allowance, 37 CFR 1.131(b)
2. ☒ Payment Enclosed
☒ Two checks in the amounts of \$710.00 and \$160.00

Money Order

Other

FEE CALCULATION (fees effective 10/01/00)

1. FILING FEE

<u>Large Entity</u>		<u>Small Entity</u>		<u>Fee Description</u>	<u>Fee Paid</u>
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	710	201	355	Utility application filing fee	<u>710.00</u>
106	320	206	160	Design application filing fee	_____
107	490	207	245	Plant filing fee	_____
108	710	208	355	Reissue filing fee	_____
114	150	214	75	Provisional application filing fee	_____
SUBTOTAL (1)					\$ 710.00

2. CLAIMS

			<u>Extra</u>		<u>Fee from below</u>		<u>Fee Paid</u>
Total Claims	<u>4</u>	- 20 =	<u>0</u>	X	<u>0</u>	=	<u>0</u>
Independent Claims	<u>5</u>	- 3 =	<u>2</u>	X	<u>80</u>	=	<u>160</u>
Multiple Dependent Claims				X		=	

<u>Large Entity</u>		<u>Small Entity</u>		<u>Fee Description</u>	<u>Fee Paid</u>
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	203	9	Claims in excess of twenty	_____
102	80	202	40	Independent claims in excess of 3	<u>160.00</u>
104	270	204	135	Multiple dependent claim	_____
109	80	209	40	Reissue independent claims over original patent	_____
110	18	210	9	Reissue claims in excess of 20 and over original patent	_____
SUBTOTAL (2)					\$ 160.00

FEE CALCULATION (continued)

3. ADDITIONAL FEES

<u>Large Entity</u>		<u>Small Entity</u>		<u>Fee Description</u>	<u>Fee Paid</u>
<u>Code</u>	<u>Fee (\$)</u>	<u>Code</u>	<u>Fee (\$)</u>		
105	130	205	65	Surcharge - late filing fee or oath	_____
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	_____
139	130	139	130	Non-English specification	_____
147	2,520	147	2,520	For filing a request for reexamination	_____
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	_____
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	_____
115	110	215	55	Extension for response within first month	_____
116	390	216	195	Extension for response within second month	_____
117	890	217	445	Extension for response within third month	_____
118	1,390	218	695	Extension for response within fourth month	_____
128	1,890	228	945	Extension for response within fifth month	_____
119	310	219	155	Notice of Appeal	_____
120	310	220	155	Filing a brief in support of an appeal	_____
121	270	221	135	Request for oral hearing	_____
138	1,510	138	1,510	Petition to institute a public use proceeding	_____
140	110	240	55	Petition to revive unavoidably abandoned application	_____
141	1,240	241	620	Petition to revive unintentionally abandoned application	_____
142	1,240	242	620	Utility issue fee (or reissue)	_____
143	440	243	220	Design issue fee	_____
144	600	244	300	Plant issue fee	_____
122	130	122	130	Petitions to the Commissioner	_____
123	50	123	50	Petitions related to provisional applications	_____
126	240	126	240	Submission of Information Disclosure Stmt	_____
581	40	581	40	Recording each patent assignment per property (times number of properties)	_____
146	710	246	355	For filing a submission after final rejection	_____
149	710	249	355	For each additional invention to be examined	_____

Other: _____

SUBTOTAL (3) \$ 0

*Reduced by Basic Filing Fee Paid

SUBMITTED BY:Typed or Printed Name: James H. Salter

Signature _____

Date 10/10/00Reg. Number 35.668Customer Number 008791

(complete if applicable)

EXPRESS MAIL CERTIFICATE OF MAILING"Express Mail" mailing label number: EL 14356 9049 USDate of Deposit: October 10, 2000

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Barbara Skliba

Name of Person Mailing Paper or Fee

Debra Skliba

Signature of Person Mailing Paper or Fee

10/10/00

Date Signed

UNITED STATES PATENT APPLICATION

for

**SYSTEM AND METHOD TO CONFIGURE AND PROVIDE A
NETWORK-ENABLED THREE-DIMENSIONAL COMPUTING
ENVIRONMENT**

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EXPRESS MAIL CERTIFICATE OF MAILING"Express Mail" mailing label number: EL 14356 9049 USDate of Deposit: October 10, 2000

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Barbara Skliba

(Typed or printed name of person mailing paper or fee)

Barbara Skliba

(Signature of person mailing paper or fee)

10/10/00

(Date signed)

SYSTEM AND METHOD TO CONFIGURE AND PROVIDE A NETWORK-ENABLED THREE-DIMENSIONAL COMPUTING ENVIRONMENT

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FIELD OF THE INVENTION

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The field of the invention relates to computer interfaces, networking, e-commerce, and configurable websites. More particularly, the field of the invention relates to an improved system and method to configure and provide network-enabled three-dimensional computing environments.

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BACKGROUND OF THE INVENTION

The computer networks such as the Internet and particularly the World Wide Web (WWW) have developed into a convenient medium by which businesses and consumers alike can sell and purchase goods and services. To facilitate such commercial activity or “electronic commerce”, businesses provide virtual or electronic environments or stores online utilizing web, application and file servers which a customer can then access using a web browser client application. Today, customers can purchase a wide variety of products by interacting with online environments via such web browsers.

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“Being in” a computing environment is more intuitive and user-friendly than merely “looking into” it. It is far more intuitive, easier and “brain friendly” to comprehend large amounts of data in the form of “visual objects”, particularly three-dimensional (3D) objects.

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In the beginning, users interfaced with their computers via one-dimensional (1D) strings of text code, a slow and difficult process that only a few people could master. Next, Graphical User Interfaces (GUIs) enabled users to address computers with 2D icons representing those

strings of code, a dramatic simplification and step forward. However, the 2D space can stifle accessibility to functionality in a computing or e-commerce environment.

Accordingly, there is a need for an improved system and method to configure and provide network-enabled three-dimensional computing environments.

SUMMARY OF THE INVENTION

The present invention is a system and method to configure and provide network-enabled three-dimensional computing environments. The presently disclosed technology enables users to interact fully, intuitively and far more easily “in” a spatial 3D environment. This technology enables each user to create an intuitive 3D desktop environment tailored to their specific needs. When turned on, the user’s computer screen displays a 3D room, which can be customized with virtual objects. The user can “enter” the space, rather than merely “view it”, operate intuitively within it (360° in every direction), and invite others to enter, participate and interact in that space. This novel technology offers an enjoyable, interactive environment as a welcome alternative to the current predominantly 2D, text-based Internet experience.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example and not limitation in the figures of the accompanying drawings, in which

5 Figure 1 illustrates a conventional communications network topology in which the present invention may be implemented.

Figure 2a illustrates a conventional data processing system useable with the present invention.

Figure 2b illustrates a prior art architecture of the data processing system depicted in
10 Figure 2a.

Figure 3 illustrates a system diagram of the architecture of the 3D computing environment of the present invention.

Figure 4 illustrates the use of the present invention in an e-commerce setting.

Figure 5 illustrates the use of the present invention in an e-community database setting.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A computer network-based system and method to configure and provide network-enabled three-dimensional computing environments is disclosed. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one of ordinary skill in the art that these specific details need not be used to practice the present invention. In other circumstances, well-known structures, materials, circuits, processes and interfaces have not been shown or described in detail in order not to unnecessarily obscure the present invention.

Referring now to Figure 1, a diagram illustrates various network topologies to which the present invention may be applied. In conventional network architectures, a server computer system 100 is coupled to a network 110. Using conventional network protocols, server 100 may communicate through network 110 to client computer systems 150 connected through networks 110 and 116 in various ways. For example, client 140 is connected directly to network 110 through direct or dial up telephone or other network transmission line. In an alternative topology, clients 130 may be connected through network 110 using a modem pool 114. A conventional modem pool 114 allows a plurality of client systems to connect with a smaller set of modems in modem pool 114 for connection through network 110. In another alternative network topology, network 110 is connected to a gateway computer 112. Gateway computer 112 is used to route data to clients 120 through network 116. In this manner, clients 120, which may be coupled to network 116 by any of the various practices described above, can communicate with each other through network 116 or with server 100 through gateway 112 and network 110.

Networks 110 and 116 may each be organized as either a wide area network (WAN) covering a large geographic area or a local area network (LAN) which encompasses, by

comparison, a smaller physical region. Wide area networks may include conventional network backbones, long-haul telephone lines, Internet service providers, various levels of network routers, and other conventional means for routing data between computers. Each network 110 and 116 may be private, for use by members of a particular company or organization, in which case the network is described as an intranet, or public, as for example, a portion of the Internet. Complete isolation from other networks or users is not required for a network to be considered an intranet. For example, users within an intranet may be given access to the public Internet through firewall servers that have the ability to screen incoming and outgoing messages so that network security is maintained. Similarly, a portion of an intranet may be made accessible to customers, partners, suppliers or others outside of a company or organization with the resulting network being described as an extranet. In one embodiment, communications network 116 is a wide area network which includes the Internet, or other proprietary networks including America Online™, Compuserve™, Microsoft Network™, and Prodigy™ and communications network 110 is a extranet local area network.

Using one of a variety of network connection means, server computer 100 can communicate with client computers 150 using conventional means. In a particular implementation of this network configuration, a server computer 100 may operate as a web server if the World-Wide Web (WWW) portion of the Internet is used for network 116. Using the HTTP protocol and the HTML or XML coding language across network 116, web server 100 may communicate across the World-Wide Web with clients 120. In this configuration, clients 120 use a client application program known as a web browser such as the Netscape™ Navigator™ formerly published by Netscape Corporation of Mountain View, CA, the Internet Explorer™ published by Microsoft Corporation of Redmond, Washington, the user interface of

America Online™, or the web browser or HTML/XML translator of any other well-known supplier. Using such conventional browsers and the World-Wide Web, clients 120 may access image, graphical, audio, and textual data provided by web server 100 or run Web application software. Conventional means exist by which clients 120 may supply information to web server 100 through the World- Wide Web 116 and the web server 100 may return processed data to clients 120.

Having briefly described one embodiment of the network environment in which the present invention operates, Figure 2a illustrates an example of a data processing system 200 illustrating an exemplary client or server computer system in which the features of the present invention may be implemented. As illustrated, data processing or computer system 200 is comprised of a system unit 202, output devices such as display device 204 and printer 210, and input devices such as keyboard 208, and mouse 206. Data processing system 200 receives data for processing by the manipulation of input devices 208 and 206 or directly from fixed or removable media storage devices such as disk 212 and network connection interfaces (not illustrated). Data processing system 200 then processes data and presents resulting output data via output devices such as display device 204, printer 210, fixed or removable media storage devices like disk 212 or network connection interfaces.

Referring now to Figure 2b, there is depicted a high-level block diagram of the components of a data processing system 200 such as that illustrated by Figure 2a. In a conventional computer system, system unit 202 includes a processing device such as processor 220 in communication with main memory 222 which may include various types of cache, random access memory (RAM), or other high-speed dynamic storage devices via a local or system bus 214 or other communication means for communicating data between such devices.

Main memory 222 is capable of storing data as well as instructions to be executed by processor 220 and may be used to store temporary variables or other intermediate information during execution of instructions by processor 220. Computer system 200 also comprises a read only memory (ROM) and /or other static storage device 224 coupled to local bus 214 for storing static information and instructions for processor 220. System unit 202 of data processing system 200 also features an expansion bus 216 providing communication between various devices and devices attached to the system bus 214 via bus bridge 218. A data storage device 228, such as a magnetic disk 212 or optical disk such as a CD-ROM and its corresponding drive may be coupled to data processing system 200 for storing information and instructions via expansion bus 216. Computer system 200 can also be coupled via expansion bus 216 to a display device 204, such as a cathode ray tube (CRT) or a liquid crystal display (LCD), for displaying information to a computer user. For example, image, textual, audio, or graphical depictions of product data and other types of image, graphical, audio, or textual information may be presented to the user on display device 204. Typically, an alphanumeric input device 208, including alphanumeric and other keys, is coupled to bus 216 for communicating information and/or command selections to processor 220. Another type of user input device is cursor control device 206, such as a conventional mouse, trackball, or other type of cursor direction keys for communicating direction information and command selection to processor 220 and for controlling cursor movement on display 204.

Alternatively, the client 150 can be implemented as a network computer or thin client device, such as the WebTV NetworksTM Internet terminal or the OracleTM NC. Client 150 may also be a laptop or palm-top computing device, such as the Palm PilotTM. Client 150 could also be implemented in a robust wireless telephone, where such devices are currently being used with

Internet micro-browsers. Such a network computer or thin client device does not necessarily include all of the devices and features of the above-described exemplary computer system; however, the functionality of the present invention or a subset thereof may nevertheless be implemented with such devices.

5 A communication device 226 is also coupled to bus 216 for accessing remote computers or servers, such as web server 100, or other servers via the Internet, for example. The communication device 226 may include a modem, a network interface card, or other well-known interface devices, such as those used for interfacing with Ethernet, Token-ring, or other types of networks. In any event, in this manner, the computer system 200 may be coupled to a number of servers 100 via a network infrastructure such that illustrated in Figure 1 and described above.

10 The system of the present invention includes software, information processing hardware, and various processing steps, which will be described below. The features and process steps of the present invention may be embodied in machine or computer executable instructions embodied within media such as disk 212. The instructions can be used to cause a general purpose or special purpose processor, which is programmed with the instructions to perform the steps of the present invention. Alternatively, the features or steps of the present invention may be performed by specific hardware components that contain hard-wired logic for performing the steps, or by any combination of programmed computer components and custom hardware components. While embodiments of the present invention will be described with reference to the
15 World-Wide Web, the method and apparatus described herein is equally applicable to other
20 network infrastructures or other data communications systems.

 The present invention is a system and method to configure and provide network-enabled three-dimensional computing environments. An introduction to the concept of the present

invention is presented below followed by a detailed description of the architecture and processes of the present invention.

When a conventional computer user turns his or her computer on, he or she sees a flat desktop computing environment with icons on the glass surface of the monitor; currently, no one “owns” the computer desktop or has done much with the desktop other than simple screen savers. The present invention improves this desktop computing environment by creating a 3D visual interface for computing environments. With the interface of the present invention, a user turns his or her computer on and the monitor immediately displays the computer desktop as a 360°, 3-Dimensional room “inside” of the monitor – a 3D computing environment. Looking at a 3D-enabled computer, the user will be looking into a computing “room” – a room with depth and dimensions, not a flat glass surface. Standard computer icons, that would normally reside only on the 2D flat glass surface of the monitor, can be spatially placed anywhere in the 3D environment.

For example, the user may want to place the desktop icons on the left wall of his or her 3D computing room (the 3D desktop) and by merely moving the cursor or computer mouse the user can quickly navigate to those icons as easily as he or she can navigate around any physical room. There can be pictures on the walls of the 3D environment computing room displaying family members, advertisements, or other messages. The user can configure his 3D environment to have a desk, file cabinets, fax machine, telephone, calendar and other standard “office room” objects inside his 3D computing environment. Teenagers may want their 3D computing environment to look like a living room or a bedroom; and, as an extension of Instant Messaging and chat, they may want to invite their friends to enter into their 3D environment computing room to chat, or listen to the same music together. Companies may want to use a 3D

environment as a tool their customers can download for product updates, sales and marketing, etc. Schools may want to use a 3D environment for remote learning – turn on the computer and use the 3D environment of the desktop as a representation of the classroom, the library, or the school bookstore.

5 In our physical world, we are accustomed to entering into “rooms” (whether it be the office, the living room, the store, the bedroom, etc.). The present invention makes the computer a more user-friendly and intuitive environment by turning the computer desktop into a “room” that its users can enter.

10 The 3D Desktop of the present invention can replace the boring, one or two-dimensional computer desktop with a web enabled, customizable, media rich environment. This environment can take the appearance of a room, a neighborhood, city or landscape. It can play music, video and animation as well as supporting real three-dimensional objects. New items can be added to the desktop via a simple drag and drop interface. Users can change colors and materials in the scene via the same drag and drop interface. The desktop supports all web functions including
15 email and buddy list interactivity.

20 In order to illustrate the advantages of the present invention, several scenarios are presented below. These scenarios illustrate the application of the present invention to real-world situations.

Scenario One

20 A company employs the present invention on their corporate intranet. Each employee now has, via the 3D interface, an office with direct links to the employee manual, standard forms, a 3D campus map locator system, company news, etc. An associate two buildings over can make a virtual visit by asking for entry to another employee's room. This can also be a

mechanism for limited file sharing. Company meetings and presentations can be held, on the desktop, in a virtual 3D Conference Room. The special virtual telephone dialing pad allows users to make free Internet calls.

5 Scenario Two

A furniture company employs the present invention on their website. They provide the 3D computing environment of the present invention free to their clients via their web site. Their version allows users to re-configure the shape and height of their rooms as well as to manipulate colors of walls, ceilings, floors etc. A special utility allows users to add their own photos to window frames to simulate the view from their window. The furniture company makes their entire furniture line available to drag and drop into the scene so that prospective purchasers can see how the furniture works in their own home. When invited, a 3D environment character visits the users room to offer advise on assembly of the new furniture and introduces a video tutorial, which streams video assembly instructions into the space. In this scenario, the furniture company is not only branding users, but they are also building client satisfaction and reducing their customer support expenses.

15 Scenario Three

20 A toy company employs the present invention on their website. They are using it as a free, downloadable doll house on the toy company's web site. Little girls can have their home computer look like a doll house. They can navigate from room to room. They can add furniture and re-arrange it as they choose. They can modify the color of the walls as well as the sofa. The lastest doll or action figure and its accessories are also in the house. The toy company's music

channel is playing on the tiny radio. A toy TV displays the latest in the toy company's doll fashions. Of course, the toy company has its logo branding and ads within the doll house.

Net-Based Architecture of the Present Invention

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The 3D computing environment concept of the present invention employing a three-dimensional user interface allows for extrapolation into the possibilities of networked "rooms."

The initial architecture described below reflects one possible embodiment for introducing linked "rooms", using the Internet as the network of choice.

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The Internet-based architecture of the 3D computing environment of the present invention (hereafter referred to as "network-enabled 3D computing environment") consists of a number of conceptual objects: the user, the Internet, the server, the search engine, and the registry. Referring to Figure 3, each of these objects are described in more detail below.

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User Object

The user object contains four components in one embodiment of the present invention:

3D Desktop: The 3D desktop 314 is the 3D interface of the present invention. It is a three-dimensional user interface, allowing the user to navigate their computer's contents with ease.

5 The network-enabled 3D computing environment extends this 3D paradigm, to allow the user to connect to the Internet, and view it as a series of three-dimensional objects, some of which will be represented as two-dimensional (or "flat") interfaces. The present invention's 3D Desktop includes a quick-to-download software file that converts the user's conventional 2D desktop into a 3D "room" environment. The present invention's 3D desktop is easy to configure, and allows the user to place standard icons within a 360° spatial environment.

Repository: The repository 316 is a database containing all the graphical objects used for three-dimensional representation to the 3D desktop. It includes objects downloaded from the Internet 320, updates from the registry 350, and user-defined objects.

15 *SDK:* The SDK 312 allows the user to create 3D-enabled applications, as well as new graphical objects for the user's 3D interface. Once again, the network-enabled 3D computing environment becomes an add-on to the standard user SDK 312.

Interpreter: The interpreter 318 is a utility that is specific to the network-enabled 3D computing environment. It allows the 3D desktop 314 to interpret incoming data from the Internet 320, for presentation to the desktop 314. This includes: applications 326 and webpages 20 324 specifically enabled for the 3D environment, applications 328 and webpages 322 not enabled for the 3D environment, and standard industry plug-ins (such as RealAudio, Flash, etc.). It is

assumed that the interpreter will have increasing functionality for handling plug-ins in a fashion that makes sense in the 3D paradigm. The interpreter 318 can also be used to sort through 3D-specific functionality in the plug-ins produced by various major players in the plug-in industry.

Internet Object

5 The Internet object 320 contains four components in one embodiment of the present invention:

Flat Webpages: The standard webpage 322 currently only possesses functionality to be perceived in a flat context. The interpreter can convert these webpages 322, on the fly, to three-dimensional functionality.

10 *Flat Applications:* Most network-aware applications 328, whether they exist on a webpage or off, are not currently enabled for 3D functionality. This includes Macromedia Director, Microsoft Outlook, etc.

15 *3D Webpages:* In one embodiment of the present invention, the 3D computing environment uses an XML-based markup language, easily embedded in XHTML or XML webpages, that allows a webpage to be simultaneously delivered as a flat webpage to standard browsers, or as a three-dimensional webpage to interpreters 318 of the present invention. This extended markup language allows users to develop 3D webpages 324 free from any additional authoring tools, although such authoring tools could be included in the SDK 312 for ease of use.

20 *3D-Enabled Applications:* Applications 328 built by other corporations can also use the extended markup language of the present invention to make their tools 3D-enabled. By hosting standard markup language libraries at the registry 350, corporations could add to the markup

language in an extensible, standardized fashion. In this fashion, corporations can deliver their tools to both a three-dimensional audience and a flat audience.

Server Object

The network-enabled 3D computing environment server contains two components in one
5 embodiment of the present invention:

The network-enabled 3D computing environment Server: Since regular web servers may or may not handle all the protocols needed to deliver 3D desktop objects, a 3D net-enabled webserver add-on 334 is required. Add-ons can be easily written for Apache, Frontpage, and other servers. This additional utility would allow the server to recognize and handle the network-enabled 3D computing environment.
10

The Server Maintenance System and Database: Any network-enabled 3D computing environment server should include a system to communicate with the registry 350, allowing for periodic updates to the network-enabled 3D computing environment-based protocols, as well as increasing the library of graphical objects that could be stored on the server 330. By storing the
15 objects on the server 330, the SDK 312 could be used by users to automatically generate 3D-enabled webpages without having the SDK on their desktop.

Search Engine

Searching the World Wide Web is currently accomplished by flat interfaces. This limits the three-dimensional experience of the 3D computing environment, especially because searching is
20 one of the primary activities of online "surfing." To this end, the present invention includes a

three-dimensional search interface. Alternately, the present invention can modify existing search engines to use the extended markup language to produce their own 3D-enabled pages.

Registry

The registry 350 can act as both a community focus for the network-enabled 3D computing environment and a net-based repository for 3D graphical objects and extensions to the conventional markup language. From this registry 350, new objects can be served to the desktop 314 for specific users, updates to the 3D desktop software can be passed to the user, advertising hits can be tallied, etc. The possibilities for enabling the 3D desktop 314 to communicate with the registry 350 are numerous.

E-Commerce System

The present invention's e-commerce system 360 takes advantage of key areas of a user's 3D computing desktop environment that are reserved for placing messages and advertisements from commercial clients. When used with the infrastructure of e-commerce systems and the present invention's registry 350, the present invention's always-present availability on a user's desktop 314 can enable additional opportunities for e-commerce.

Financial Services System

The Financial Services system 370 of the present invention applies more advanced features, such as: (1) for use in Corporate Intranets; (2) as a tool for Retail Financial Planners and Institutional Financial Services users to more efficiently process data and make more informed decisions; and (3) to conduct additional transactions in less time. This gives retail customers a

more intuitive tool to interact with the data they receive from financial institutions, and to conduct banking and other financial transactions online.

Extensions of the Present Invention

5 The network-enabled 3D computing environment of the present invention has several extensions, including: the introduction of real-time *avatars*. Avatars are virtual representations of users, allowing them to interact with other users across a network. The ability to create an interactive online community is very powerful. Such a utility would allow for intra- and inter-company meetings, the extension of the online communities which exist today, virtual concerts,
10 online games, etc.

15 Companies such as id Software (the makers of Quake), Blizzard North (the makers of Diablo), and others have explored limited avatar use with startling results. The Diablo server had, at one point, over 320,000 simultaneous connections. The present invention can be used with this conventional technology to create a population of network-enabled 3D computing systems, with people interacting in virtual cafés, offices, showrooms, etc. The network-enabled
20 3D computing environment allows for the creation of a cyberspace experience previously only available in science fiction.

25 Referring now to Figures 4 and 5, the structure and processes provided and enabled by the present invention are illustrated. In Figure 4, the present invention provides a structure and process for enabling existing two-dimensional e-commerce engines to employ the three-dimensional computing environment in an e-commerce setting. In Figure 5, the present invention provides a structure and process for enabling existing two-dimensional e-community databases to employ the three-dimensional computing environment in an e-community database setting.

Referring to Figure 4, the use of the present invention in an e-commerce setting is illustrated. As shown in Figure 4, a user 410 accesses a public network such as the Internet and logs onto a business website to order software. Such business websites are common on the Internet (Example: Macromedia). It will be apparent to one of ordinary skill in the art that many e-commerce websites exist on the Internet through which software may be ordered and purchased. The user 410 access to a networked e-commerce website 420 is illustrated in Figure 4 with an arrow 411. In this example of the present invention in an e-commerce context, the webpage accessed by user 410 appears as any typical webpage provided by the particular e-commerce provider 420. However, by previous agreement between a provider of the present invention and the e-commerce provider 420, the user 410 access and request for purchase to e-commerce client 420 causes the e-commerce client 420 software to make an access to a 3D engine and e-commerce front end store front 430 on e-commerce client website 420. This access 421 to the 3D engine and e-commerce front end 430 is not apparent to user 410. However, 3D engine and e-commerce front end 430 drive the e-commerce transaction with user 410. Thus, 3D engine and e-commerce front end 430 processes the user 410 order and downloads the requested or purchased software to the user's client machine 460. Because 3D engine and e-commerce front end 430 controls the order processing and download transaction with user 410, the 3D engine and e-commerce front end 430 may append a persistent 3D environment client kernel 465 to the software requested or purchased by user 410. Thus, the user 410 requested or purchased software with the appended 3D environment persistent kernel 465 is downloaded to client machine 460 as shown in Figure 4 by arrows 431 and 442. When user 410 installs the downloaded software on client machine 460, the persistent 3D kernel is automatically installed on the user's desktop environment at client machine 460. Following the downloading of the

requested or purchased software with the appended 3D environment persistent client kernel 465, e-commerce engine component 440 automatically notifies the 3D environment server 450 via interface 441. In this manner, the 3D environment server is now aware of the identity and/or location of a client machine 460 to which the persistent 3D kernel 465 has been downloaded.

5 Upon automatic installation of the 3D persistent client kernel 465, the user is given a demonstration of the 3D environment software and given the choice to activate a full three-dimensional computing environment on the user's desktop at client machine 460. If the user 410 chooses not to activate the 3D computing environment, the 3D environment persistent client 465 nevertheless remains active in an unobtrusive two-dimensional persistent window on the user's desktop for the delivery of advertisement or messages to the user's desktop. As such, the present invention provides a persistent presence on the user's desktop for the placement of advertising, messages, or the gathering of information about the user for the benefit of the e-commerce engine 440 with which the present invention has been connected. Because the three-dimensional environment server 450 was advised by component 440 of the download of the persistent kernel 10 465 to client system 460, the 3D server 450 may keep a registry of such downloads along with corresponding user profiles, buying patterns, searches, etc. This registry and associated user information can be made accessible to the e-commerce client 420 via interface 451 with 3D server 450. In this manner, the e-commerce supplier 420 can thereby obtain information about users of the e-commerce site via 3D server and registry 450. Because the present invention 15 through 3D server 450 can provide e-commerce client 420 with a wealth of information about particular users, the e-commerce client 420 may generate targeted advertising or product offerings for particular client machines 460. In this manner, the present invention becomes a valuable information link between Internet e-commerce suppliers and e-commerce consumers. 20

Referring to Figure 5, the use of the present invention in an e-community database setting is illustrated. As shown in Figure 5, a user 510 may access the public network, such as the Internet, and log into a conventional e-community database 520 (such as e-groups.com). Once the user has accessed the e-community database, the user typically navigates to a particular selected area of interest, as provided by the conventional e-community database technology. For example, the user 510 may navigate to a special interest area related to, for example, photography. By prior agreement between the e-community database provider and the provider of the technology of the present invention, the e-community database website can be augmented to include a user interface for the selection and activation of a three-dimensional version of the e-community database. Using this interface, user 510 may activate a 3D version of the e-community database 520. As a result of this activation, the e-community database website communicates with a three-dimensional environment spacial shell component 530. Three-dimensional shell component 530 includes a three-dimensional spacial representation of the two-dimensional environment previously provided by e-community database 520. Instead of viewing email text, photos, or objects in a flat two-dimensional environment, the user can now move through the e-community database 520 in a three-dimensional computing environment, interacting with others, and viewing the content of the e-community database 520 in a compelling three-dimensional environment. In this environment, visual real estate is created and the user experiences a sensation of sharing a physical three-dimensional space with other users. In this three-dimensional spacial environment, advertising and other paid messages can be placed and directed specifically to those interest area users. At block 540 in Figure 5, the user may navigate through the three-dimensional spacial e-community worlds and link to other sites and/or perform software downloads via interface 542 to the client machine 560. Once in the three-dimensional

computing environment enabled e-community database, user 510 has an option to download the three-dimensional environment software to the desktop of his or her client machine 560. As a result of this download, the three-dimensional environment server 550 is notified of the client download via interface 541. In this manner, the three-dimensional server 550 and the registry contained therein is informed of the three-dimensional software download to a client machine 560 and may keep track of the location and/or identity of the user who has downloaded and installed the three-dimensional computing environment software. Email or software downloads from the e-community database 520 to its users will include a link to initiate the downloading of a three-dimensional environment persistent client kernel 565 to the desktop on the client machine 560. In this manner, the e-community database provider 520 retains a persistent presence for a three-dimensional computing environment on client computer 560. Again, as described above, this persistent client kernel 565 may be used to obtain client information such as profiles, buying patterns, searches, etc. which can be retained in the registry of 3D server 550. This user information retained in the registry of 3D server 550 may be accessed and used by the e-community database provider 520 via interface 551. In this manner, e-community database provider 520 may employ targeted advertising, targeted information publications, links, or other information particularly relevant to individual client machines 560.

Thus, a computer network-based system and method to configure and provide network-enabled three-dimensional computing environments is disclosed. Although the present invention is described herein with reference to a specific preferred embodiment, many modifications and variations therein will readily occur to those with ordinary skill in the art. Accordingly, all such variations and modifications are included within the intended scope of the present invention as defined by the following claims.

CLAIMS

What is claimed is:

1. A method comprising:
providing a three-dimensional computing environment;
receiving a two-dimensional web page;
converting the two-dimensional web page to a form useable in the three-dimensional
5 computing environment; and
presenting the three-dimensional computing environment with the converted web page
contained therein to a user.
2. A data processing system-readable medium having a plurality of instructions executable
by a data processing system embodied therein, wherein said instructions when executed cause
said data processing system to:
provide a three-dimensional computing environment;
5 receive a two-dimensional web page;
convert the two-dimensional web page to a form useable in the three-dimensional
computing environment; and
present the three-dimensional computing environment with the converted web page
contained therein to a user.
3. A method comprising:

providing a three-dimensional computing environment;

receiving a two-dimensional application program;

converting the two-dimensional application program to a form useable in the three-

5 dimensional computing environment; and

presenting the three-dimensional computing environment with the converted application program contained therein to a user.

4. A data processing system-readable medium having a plurality of instructions executable by a data processing system embodied therein, wherein said instructions when executed cause said data processing system to:

provide a three-dimensional computing environment;

5 receive a two-dimensional application program;

convert the two-dimensional application program to a form useable in the three-

dimensional computing environment; and

present the three-dimensional computing environment with the converted application program contained therein to a user.

5. A method comprising:

accessing a website;

automatically accessing a 3D environment server in response to the access to the website;

generating a 3D environment on the website; and

5 retaining information related to the website access in a repository.

ABSTRACT

A computer network-based system and method to configure and provide network-enabled three-dimensional computing environments is disclosed.

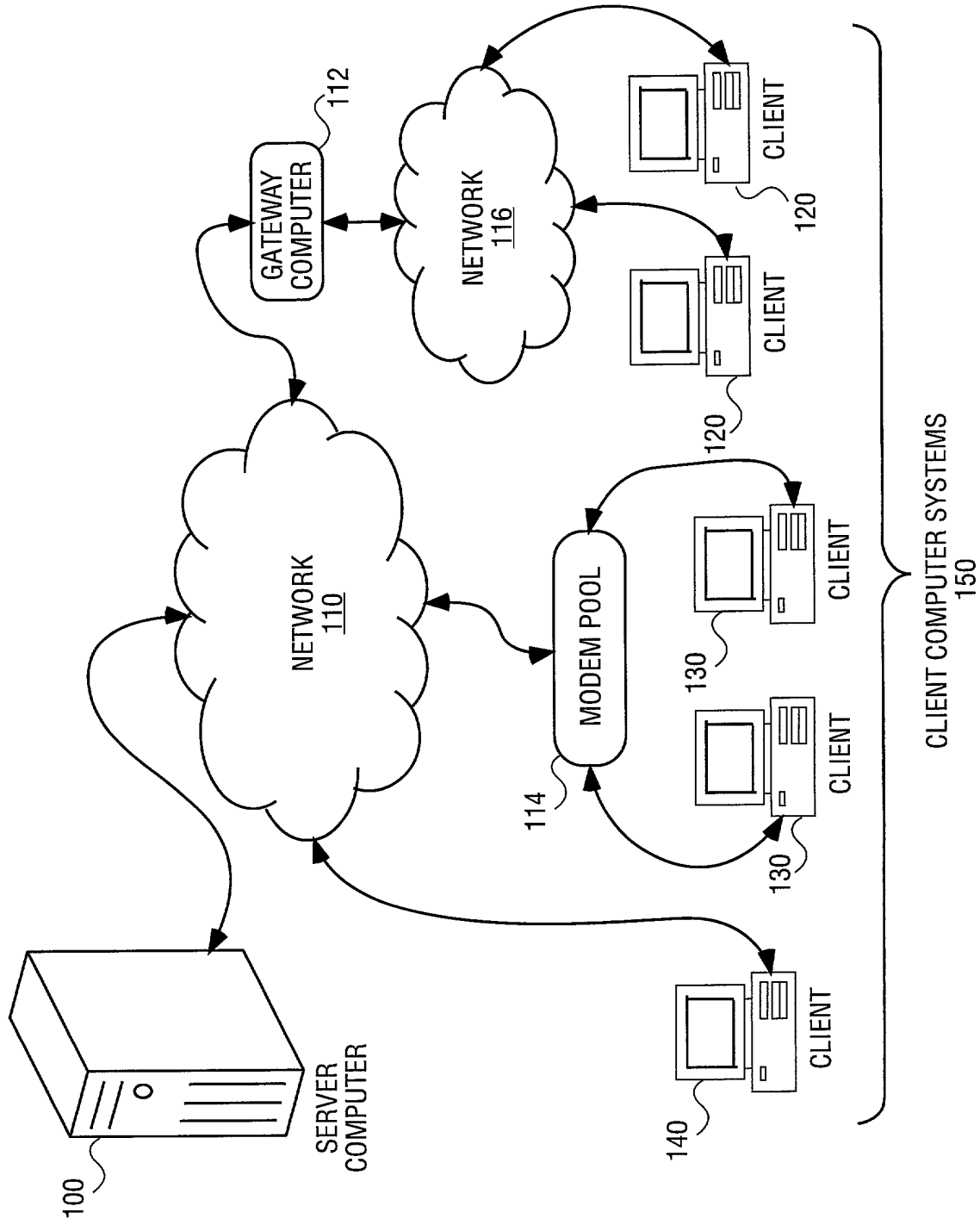


FIG. 1

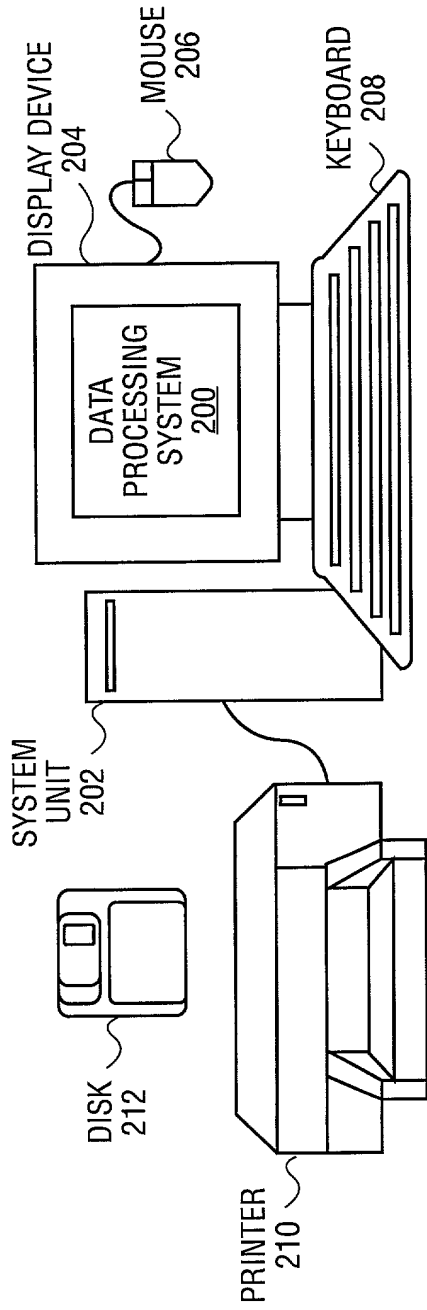


FIG. 2A

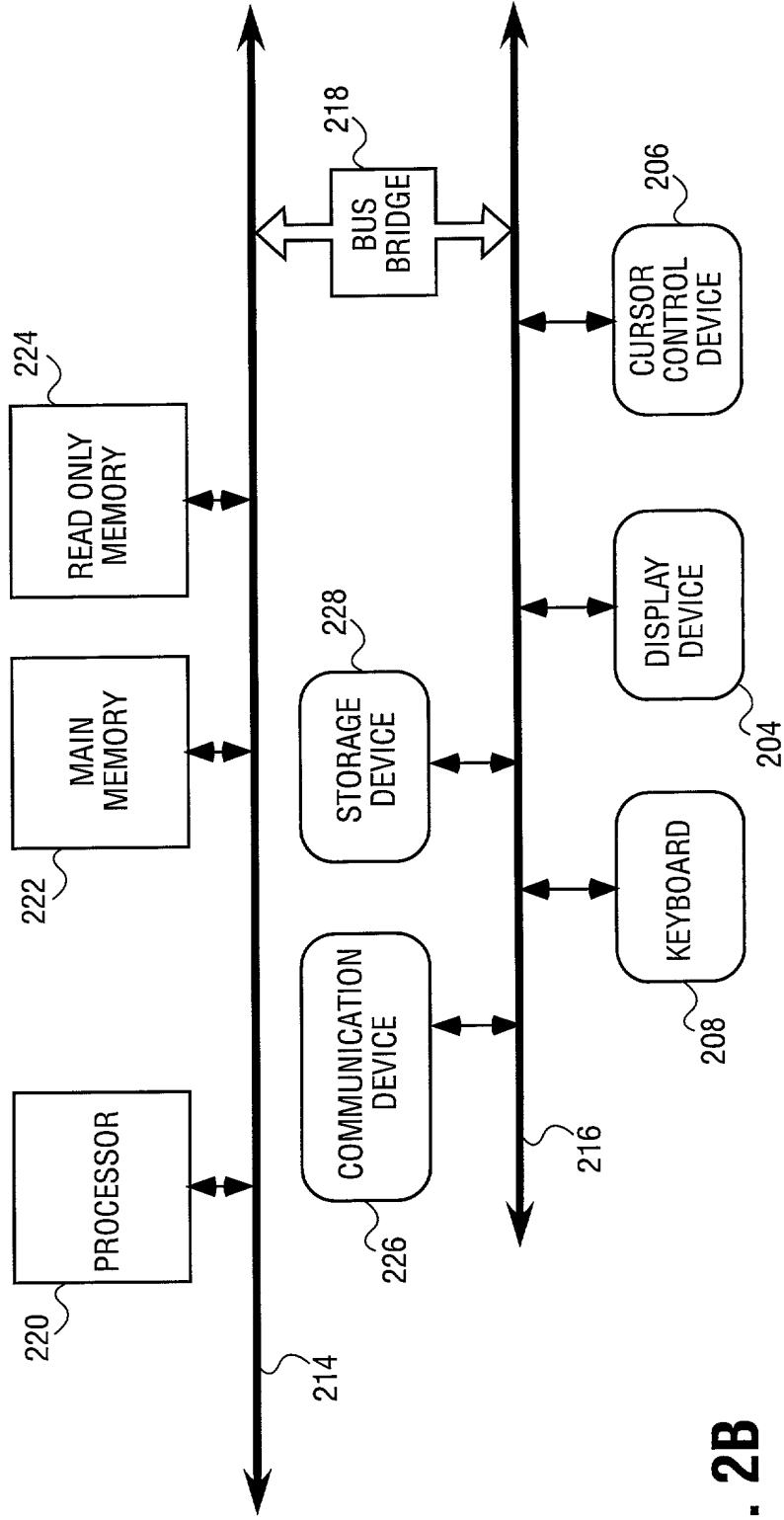
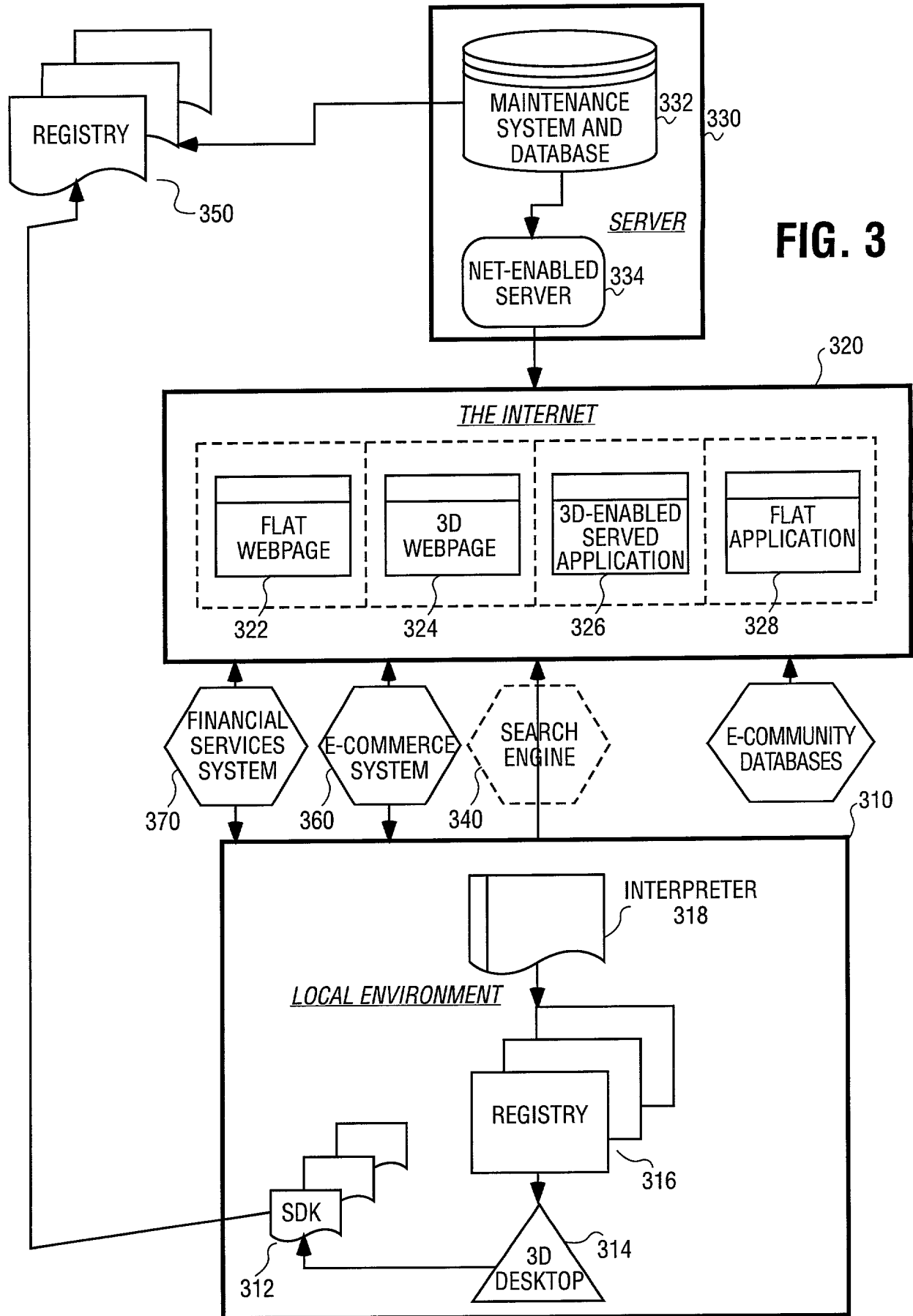


FIG. 2B



REVENUE SHARING WITH EXISTING E-COMMERCE ENGINES

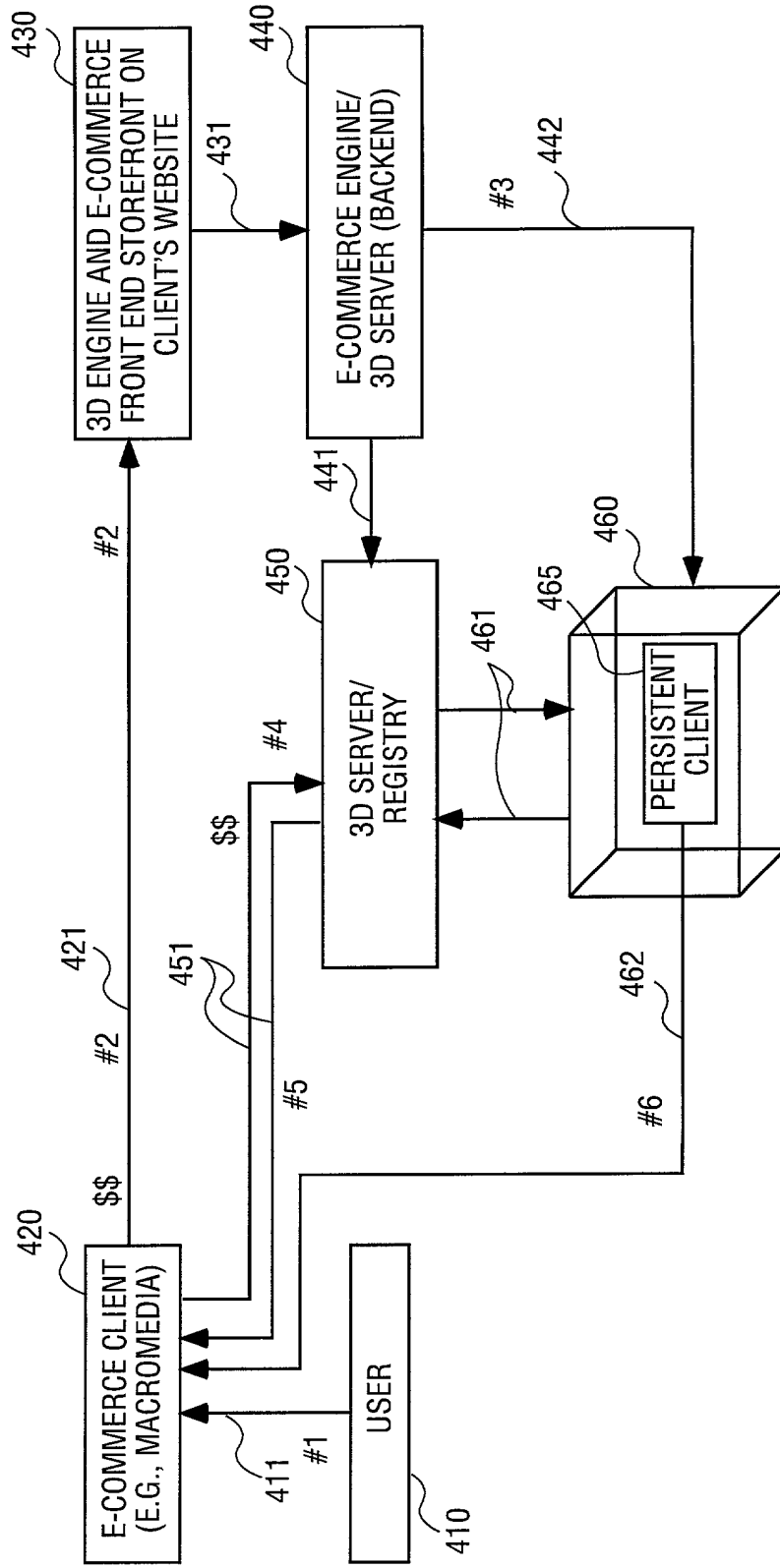


FIG. 4

As a below named inventor, I hereby declare that:

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

the specification of which

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I do not know and do not believe that the claimed invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (for a utility patent application) or six months (for a design patent application) prior to this application.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

-1-

I hereby claim the benefit under title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

(Application Number) (Filing Date – MM/DD/YYYY)

(Application Number) (Filing Date – MM/DD/YYYY)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Number) (Filing Date – MM/DD/YYYY) (Status -- patented,
pending, abandoned)

(Application Number) (Filing Date – MM/DD/YYYY) (Status -- patented,
pending, abandoned)

I hereby appoint the persons listed on Appendix A hereto (which is incorporated by reference and a part of this document) as my respective patent attorneys and patent agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

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(Name of Attorney or Agent)

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(Name of Attorney or Agent)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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APPENDIX A

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APPENDIX B

Title 37, Code of Federal Regulations, Section 1.56
Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.